mode of growth already described, two new frustules being gradually formed within the old one; but it differs from *Isthmia* in having all its angles equal, and from both in having a four-sided and not a compressed figure.

1. *A. antediluviana*, Eh. Frustules nearly square, lateral surfaces with the cells arranged in a radiate form. Pritch. Infus. p. 442.

Parasitic on the smaller marine algæ. Ilfracombe, Devonshire; and by the Mumbles Light-house near Swansea.

It is of a dirty-brown colour when recent and becomes paler in drying.

Filaments elongated, frequently containing thirty frustules in a chain; frustules minute, nearly equal in length and breadth; each lateral portion has four slightly produced angles and no intermediate projections, and its cells are rather large and somewhat radiate.

On a lateral view the figure is quadrangular with concave sides, and at each angle there is either a round opening, or a large and more strongly marked cell which presents the appearance of one.

The central portion is four-sided, and its reticulations, which are smaller, are frequently arranged in lines.

Mrs. Griffiths aptly compares the figures of the separated frustules to bales of cloth made up with bands for exportation.

Plate VIII. fig. 5. *a*, *Amphitetras antediluviana*; *b*, frustules deprived of their colouring matter; *c*, lateral view.

[To be continued.]

PROCEEDINGS OF LEARNED SOCIETIES.

ZOOLOGICAL SOCIETY.

Nov. 22, 1842.—Wm. Yarrell, Esq., Vice-President, in the Chair.

The following descriptions of new species of *Nerites*, collected by Mr. Cuming in the Philippine Islands, by M. C. A. Récluz, were read.

Observation.—By length is meant the distance from the summit of the spire to the external base of the columella; by breadth, the diameter formed by the extremities of a line which should pass from the anterior to the posterior side; and by convexity or thickness, the distance comprised between the most convex parts of the columella and of the last whorl.

Second Section of the Genus.—Shells smooth, or striated lengthwise; outer lip without teeth and without furrows internally; columella not notched at the summit; columellar lip sharp, or crenulated at the margin. *Neritina*, Lamarck.

* Orbiculatæ seu subhemisphæricæ.

1. Nerita labiosa (Sowerby). *N. testâ orbiculari, posticè angustatâ, fornicatâ, crassâ, maximâ, striatâ, fusco-viridescente, nigro et rufo obsoletè variegatâ; anfractibus duobus ad suturam com-*

pressis; apice compresso-concavo; aperturâ orbiculari, subcontinuâ, intùs albidâ; labio latissimo, depresso-plano, fusco-aurantio, margine subarcuato, edentulo; labio rotundato, supernè et infernè dilatato.

Var. β. *Testâ nigrescente, immaculatâ.*

Long. 1·52; lat. 1·84; conv. 1·04 poll. Aperturæ altitudo 1·52; lat. 1·60 poll.

Hab. Ad Insulas Philippinas; Tanhay, isle of Negros: in a small river. Var. β, Agoo, province of Pangasinan, isle of Luçon: on stones in a rapid river.

Two pyriform muscular impressions, and more forward than in any other species, are visible at the internal base of the columella, which has no trace of callosity.

The upper tooth of the operculum is oblique, lamellated, with a strongly-cut crest, a character which is unique in the genus *Nerita.*

2. NERITA SQUAMÆPICTA. *N. testâ ovato-subhemisphæricâ, supra medium vix depressâ, striis longitudinalibus remotis supernè et anticè subarcuatis impressâ, sub epidermide olivaceo maculis squamiformibus anticè nigro-marginatis undique pictâ; apice rotundato-obtuso; aperturâ extùs ovatâ, intùs albido-cærulescente; labio plano, lutescente, medio albo, anticè tenue arcuatim denticulato.*

Long. 1·16; lat. 1·44; conv. 0·88 poll.

Hab. Agoo, province of Pangasinan, isle of Luçon: in a rapid river.

Operculum similar to the Nerites, allied to *N. pulligera*; subconvex above, finely striated lengthwise, of a whitish fawn-colour posteriorly; rosy anteriorly, streaked with circular bands of a blackish blue; subconcave below, of a dirty green, spotted with rosy white at the anterior side. Two teeth: the upper one ovate, acute at the summit, reddish; the lower one circular, canaliculated lengthwise, feebly striated transversely, yellowish.

3. NERITA PETITI, Récluz, Rev. Cuv. 1841. p. 274. No. 24.

Var. β. *T. majori, fusco-castaneâ; infimè et supernè ad suturam compressâ et subcanaliculatâ; spirâ retusâ.*

Var. γ. *T. minori, fusco-nigrescente, sub oculo et lumine maculis nigris diversiformibus notatâ; aperturâ subrotundâ, supernè et infernè dilatatâ, intùs aurantiâ.*

Long. 1·40; lat. 1·96; conv. 1·16 poll.

Hab. Cagayan, province of Misamis, island of Mindanao: on stones. Var. γ, Agoo: in a mountain-stream.

The operculum of this species differs from that of *N. pulligera* only in its paler colour.

4. NERITA ASPERULATA. *N. testâ ovato-ellipticâ, striis intertextis granulosis asperulatâ, fusco-nigrâ, sub oculo et lumine, lineis nigris ramosis transversis intricatis notatâ; anfractibus 1½, supernè depressis; apice prominulo, obtuso; aperturâ rotundatâ, supernè et infernè dilatatâ, luteo-fuscescente; labio plano-compresso, margine vix arcuato et tenue ruguloso.*

Long. 0·56; lat. 0·76 ad 0·84; conv. 0·40 ad 0·44 poll.

Hab. Pasaguing, province of North Ylocos, island of Luçon: on stones in a small river.

The operculum of this species does not differ from that of *N. pulligera,* except in its colour, which is of a brownish black, faintly and indistinctly striated with fawn-colour from the summit to the anterior margin; the striæ often scarcely apparent.

5. Nerita Panayana. *N. testâ parvâ, ovato-hemisphæricâ, ventricosâ, posticè angustatâ, tenui; luteo-viridescente, lineolis nigrescentibus angulato-flexuosis creberrimis pictâ; anfractibus* $1\frac{1}{2}$ *supremo eroso-retuso; aperturâ extùs orbiculari, intùs dilatatâ, albido-cærulescente; columellâ semi-lunari planâ, albâ, anticè rectiusculâ.*

Long. 0·28; lat. 0·40; conv. 0·20 poll. Apertura altit. et diam. 0·28 poll.

Hab. River Dingle, province of Ylo-Ylo, island of Panay: on small stones.

Operculum unknown. This species resembles some varieties of *Ner. dubia,* but differs from them by its form and by its spire; also in the absence of any depression at the inferior margin of the columella.

6. Nerita crepidularia (Lamarck).

Var. *major. T. hemisphæricâ, crassiusculâ, dorso fornicatâ, purpureo-nigrescente maculis quadratis luteis tessellatâ, aperturâ extùs continuâ pallidè cinnamomeâ; labio subplano, in medio longitudinaliter arcuatimque sulco notato, anticè arcuatim crenulato.*

Long. 0·80; lat. 1·04; conv. 0·60 poll.

Hab. Jimmaymilan, isle of Negros: found on the trunks of the Nepa Palm, in brackish water.

I do not see in the characters of this Nerite anything to cause its separation from the *Neritina crepidularia,* Lam.; *N. mitrula,* Menke, 'Synopsis,' p. 48; nor from the *N. violacea,* Gmelin, if it is not its larger proportions. I presume that the *Patella neritoidea,* Linn., Mus. Lud. Ulr., p. 688. No. 409, is the same shell, worn and occupied by a *Pagurus.*

7. Nerita Rangiana, Récluz in Guérin, Rev. Cuv. 1841. p. 339. No. 46.

Var. *minor. T. pulchrè viridi, punctulis albis, anticè nigro marginatis, transversim* 2–4 *seriatis, ad suturam maculis albis subarcuatis lacteis ornatâ.* An *Ner. viridis,* Sowerby, Conch. Illustr., f. 24?

Long. 0·23; lat. 0·24 poll.

Hab. Dumaguété, island of Negros: found in a small stream.

Operculum green, slightly concave above, finely striated lengthwise, with two other circular striæ from the summit to the posterior margin; very convex underneath, hollowed at the posterior side for the insertion of the muscle, and provided with two teeth at the top; the upper one very short, lamellated, and truncated at the summit; the second circular, equally short, dilated into a sort of plate on the side of the summit of the operculum, which gives to this tooth a lanceolate form.

The figure published by Mr. Sowerby under the name of *Neritina viridis*, Linn., and which this author says inhabits Antigua, appears to me to be the same as *Ner. Rangiana, var. minor*; but as I have only his figure to guide me, I cannot state it as a fact.

8. NERITA PULLIGERA, Linn., Lamarck (non Lesson, Voy. Coq.).

Var. *β. T. labio posticè aucto.*

Hab. Cagayan, island of Mindanao: on stones in a deep river.

This prolongation of the posterior border of the columella renders this variety remarkable. This Nerite may possibly be found hereafter biauriculated.

** Auriculatæ.

9. NERITA SUBAURICULATA. *N. testâ ovato-hemisphæricâ, convexâ, fusco-violascente, punctis albido-lutescentibus densè aspersâ; apice brevissimo; aperturâ extùs ovatâ, posticè truncatâ, continuâ, plumbeo-nigrescente, dilatatâ; columellâ convexo-depressâ, sulco obsoleto circumcinctâ, anticè vix arcuatâ, denticulatâ; labro supernè in auriculâ brevissimâ prolongato.*

Long. 0·52 ad 0·56; lat. 0·68 ad 0·72; conv. 0·32 ad 0·40 poll.

Hab. Jimamailan, isle of Negros: on the Nepa Palm trunks in brackish water.

This *Neritina* is very nearly allied to *Ner. violacea*, Gmel., but is smaller, less convex, with the summit more inclined towards the margin; the opening truncated posteriorly, dilated at the summit and at the base, and auriculated on the superior side. The operculum does not differ materially; it is a little darker above, with a flesh-coloured zone on the middle, visible only at its base.

10. NERITA BICANALICULATA. *N. testâ ovatâ, posticè truncatâ, dorso convexâ, tenui, pellucidâ, fuscescente, lineis violaceo-nigris, crebrè et eleganter reticulatâ; apice brevissimo, dorso interdum compresso plano; labio lato, subconvexo, margine arcuatim tenue denticulato; labro posticè biauriculato; auriculis angustis, subtùs canaliculatis.*

Var. *β. T. fuscescente, lineolis obsoletis, interstitiis interdum conico-angustis; spirâ integerrimâ, punctiformi; auriculis concaviusculis, aperturâ pallidè fuscâ.*

Var. *γ. T. pallidiore, vix reticulatâ.*

Hab. Island of Camiguing: found in a small pond. Var. *β*, Passiguing, province of North Ylocos: on stones in a rapid river. Var. *γ*, Abulug, province of Cagayan: on stones in a large river.

A fine *Neritina*, very distinct from all the auriculated species hitherto known. Its auricles are narrow, convex above, and hollow beneath, or in form of a short canal.

Operculum oval, flat above, flesh-coloured, and radiated from the summit to the anterior side with five to seven blackish lines; the anterior side bordered with a blood-coloured zone, enclosed by another pellucid zone; very fine striæ spring from the summit, and radiate to the anterior side in an opposite direction to the bands.

Inferior surface less flat, pale rosy brown or reddish brown, as well as the teeth, which offer nothing particular, and which resemble those of the opercula of *Ner. pulligera* and other allied species. The operculum of var. β is of an uniform colour above, on account of its zones being confluent. That of var. γ is of a very pale green, with a circular stria, which divides its external surface in two parts almost longitudinally. This character is also observable upon the operculum of var. β, but very faintly. There is no trace of it upon the type.

*** Spinosæ, interdum muticæ (*Clithon*, Montfort).

11. Nerita olivacea. *N. testâ ovato-globosâ, ventricosâ, crassâ, griseo-olivaceâ, anfractibus* $2\frac{1}{2}$, *supernè depressiusculis; apice subconvexo, obtuso, laterali, in medio deroso; aperturâ extùs subquadratâ, intùs exalbidâ, labio posticè rufescente, plano, margine crenato, et in medio vix arcuato.*

Long. 1·12; lat. 1·36; conv. 0·76 poll.

Hab. Agoo, province of Pangasinan, island of Luçon: on stones in a rapid river.

This *Clithon* has sometimes a brownish zone posteriorly, with some faint reddish spots. The summit of the shell is corroded and excavated. Operculum of a *Clithon*, rosy white, spotted with red at the summit, and faintly marked with a circular streak in the centre of its external surface. The interior surface is reddish, convex, and flattened at the base; two teeth at the top, the upper one lamellated, elevated into an obtuse point; the second or inferior one circular and striated. Underneath this tooth there is a great depression.

12. Nerita bicolor. *N. testâ ventricoso-ovatâ, crassiusculâ, sub suturâ depressiusculâ, strigis nigris et olivaceis longitudinalibus densè pictâ; apice eroso; aperturâ extùs subquadratâ exalbidâ; labio plano, supernè calloso basi canaliculato, margine in medio arcuato, et obsoletè dentato; dente cardinali majori.*

Long. 1·04; lat. 1·20; conv. 0·76 poll.

Hab. Agoo: in a mountain-stream.

Operculum of a *Clithon*, oval, solid, whitish, striated lengthwise in an oblique direction, and marked with a circular furrow from the summit to the posterior margin, ending in a slight notch; inferior surface furnished with a large, circular, slightly raised rib, prolonged in an obtuse angle at the posterior margin. Two teeth at the top: the upper one an oblique rosy plate terminated at the summit; the lower one circular, delicate yellow, enlarged at the summit, and striated lengthwise and across.

13. Nerita interrupta. *N. testâ ovato-semiglobosâ, apice valdè corrosâ et truncatâ, olivaceâ, lineolis luteis interdum interruptis creberrimis et fasciis latiusculis luteis transversis pictâ; aperturâ extùs semi-ovali, intùs luteâ; labio subsemilunari, plano-concavo, margine in medio arcuato, acuto, dente cardinali exserto.*

Lat. 0·96; conv. 0·64 poll.

Hab. Yba, province of Zambales, isle of Luçon: on stones in a rapid river.

The flat and greatly eroded summit does not allow the form and length of the shell to be ascertained with exactitude. It appears to me to have at most a whorl and a half faintly depressed below the suture.

Operculum very like that of *N. bicolor*, but of a yellowish white colour externally. On the inferior surface I observe that the upper tooth is stronger; the lower one annulated transversely, in a more distinct manner. The intermediary plate is more compressed and less sinuous at the margin, and the notch at the posterior part appears to me to be deeper.

14. Nerita angulosa. *N. testâ ventricoso-globosâ, supernè depresso-planâ, subtûs angulosâ, olivaceâ, maculis luteis parvulis obsoletis notatâ; anfractibus duobus inæqualiter rugatis; supremo deroso-concavo, aperturâ subrotundatâ, anticè et posticè angustatâ, supernè et infernè dilatatâ; columellâ angustâ, medio concavâ, supernè callosâ, anticè tenuè denticulatâ, medio emarginatâ.*

Long. 0·72; lat. 0·92; conv. 0·60 poll.

Hab. Casan, province of Misamis, island of Mindanao: on stones in a small stream.

Operculum oval, waved with grey on the anterior side, with a narrow circular furrow ending in a strong posterior notch: this furrow bounds a superior, obtuse and circular angle. The summit of an orange colour; internal surface bearing a curved rib in the centre, of greater or less width. Superior tooth yellowish and obtuse; the inferior yellowish white and substriated lengthwise; the intermediary plate between the two teeth of a citron colour, cut obliquely at the margin. The depression existing at the base of the lower tooth is of a flesh-colour approaching to cinnamon.

15. Nerita circumvoluta. *N. testâ globoso-subovatâ, dilutè fulvâ in roseo vertente, punctis luteolis anticè lineis nigris marginatis marmoratâ, zonis nigris remotis circumcinctâ; anfractibus duobus nigro-marginatis; supremo obtuso, decorticato; aperturâ albidâ; labio plano, supernè calloso, anticè ruguloso, et in medio arcuatim emarginato.*

Long. 0·72; lat. 0·84; conv. 0·68 poll.

Hab. ad Insulas Philippinas.

Operculum of a *Clithon*, oval, of a rosy white, with a broad, rather concave and central furrow; on the interior face of a pale yellowish colour, shaded with rose. One lamellated and pointed tooth near the summit, and an inferior one, which is circular, subcanaliculated in the centre, and striated transversely.

16. Nerita squarrosa. *N. testâ ventricoso-globosâ, interdum subovatâ, supernè depressâ et subangulatâ, epidermide squarrosâ, maculis rufescentibus angulatis confertis nigro seu olivaceo marginatis pictâ, apice rotundatâ, aperturâ extûs subquadratâ, intûs albido-cærulescente; labio suprâ lutescente, plano, anticè ruguloso, medio arcuato.*

Var. *β. T. subrubicundâ, nigro-fasciatâ.*

Var. *γ. T. roseo-purpurascente, albo-maculatâ, labio margine detrito.*

Var. δ. *T. roseo-purpurascente, albo-maculatâ, nigrescente fasciatâ; labio detrito.*

Long. 0·80 ad 0·84; lat. 1·04 ad 1·08; conv. 0·68 ad 0·76 poll.

Hab. Jimamailan, isle of Negros: on stones in a mountain-stream. Var. β, Ginijeran, isle of Negros: on stones in a sluggish river. Var. γ and δ, island of Burias.

Operculum of a *Clithon*, whitish or rather rosy externally, with one or two circular striæ in the centre; of a livid rose-colour, spotted with yellow on the interior. Two teeth: the first lamellated, pointed at the summit; the lower one circular, narrow, striated lengthwise and across, but faintly. Subapophysary canal spotted with livid rose, showing below two remote angles, but slightly raised.

17. NERITA SOWERBIANA. *N. testâ subglobosâ, tenuè striatâ nigro et albido alternatim fasciatâ; fasciis nigris albo-articulatis, albidis maculis nigro-marginatis anticè sagittatis ornatâ; anfractibus tribus, convexis; spirâ vix prominulâ, rotundatâ; aperturâ obliquâ cinerascente; labio subconvexo, lutescente, anticè denticulato arcuatoque.*

Var. β. *T. cinereo-lutescente, maculis sagittatis ut suprà subzonatâ; ad suturam maculis arcuatis nigris ornatâ.*

Var. γ. *T. nigerrimâ, maculis triangularibus albidis adspersâ, ad suturam interdum subspinosâ.*

Var. δ. *T. nigerrimâ, maculis raris subpunctatâ, zonis duabus lutescentibus cinctâ, ad suturam subspinosâ.*

Long. 0·56 ad 0·60; lat. 0·64 ad 0·72; conv. 0·48 poll.

Hab. Sinait, province of North Ylocos, island of Luçon: on the stony bed of a small river. Var. β, γ and δ, island of Guimaras: found in a small stream on rocks.

Operculum of a *Clithon*, deeply hollowed with a circular stria in the centre, zoned transversely with bluish in the anterior portion of its external surface; the interior of a yellowish or livid rose-colour: upper tooth citron, short, obtuse, united to the lower one, which is smooth, circular, striated lengthwise and across by a short plate, which is subsinuous anteriorly.

I see no difference among all the varieties which I unite to this Nerite, except those of colour. The characters of the operculum are the same.

I have very great satisfaction in dedicating this species to that scientific conchologist, Mr. G. B. Sowerby.

18. NERITA MONTACUTI. *N. testâ ventricoso-globosâ, suprà medium spinis brevibus coronatâ, obliquè striatâ, lutescente, supernè et infrà medium zonis nigris lutescente maculatis pictâ; supremâ latiore; anfractibus tribus supernè depresso-planis; spirâ depresso-convexâ; aperturâ dilatatâ, rotundatâ, albido-lutescente; labio angusto, medio concavo, margine denticulato, in centro arcuato.*

Var. β. *T. olivaceâ, maculis lutescentibus adspersâ, ultimo anfractu supernè convexiusculo, labio denticulato.*

Var. γ. *T. dilutè olivaceâ, maculis pallidioribus nigro anticè sagittatis marginatisque; ultimo anfractu supernè subconvexo, labio edentulo, integerrimo.*

Var. δ. *T. nigerrimâ, punctis albis sparsis notatâ; labio denticulato.*

Var. ε. ? *T. fulvâ, nigrescente tinctâ, sub oculo et lumine punctulis pellucidis obsitâ; spinis extrorsum curvatis; ultimo anfractu basis costulâ notato; spirâ vix prominulâ.*

Long. 0·76; lat. 0·80 ad 0·88; conv. 0·60 ad 0·64 poll.

Hab. Island of Burias: on stones in a rivulet.

I consider it my duty to dedicate this Nerite to the learned conchologist Montagu, as a homage due to his talents.

19. Nerita Donovani. *N. testâ semiglobosâ, tenuè et densè striatâ, viridescente, lineis obliquis purpureo-nigrescentibus, equidistantibus undatis ornatâ; anfractibus tribus convexis, supra medium spinis incurvis armatis; apice deroso; aperturâ cærulescente, basi effusâ, angulosâ; labio angusto, supernè calloso, basi concavo, margine subrecto denticulato; dente cardinali majori.*

Var. β. *T. ovatâ, nitidâ, maculis viridibus et purpurascentibus densè tessellatâ; spinosâ, ultimo anfractu supernè ascendente, basi costulâ transversâ notato; spirâ prominulâ.*

Long. 0·50; lat. 0·60; conv. 0·40 poll. Var. β, long. 0·56; lat. 0·60; conv. 0·44 poll.

Hab. Island of Guimaras: on stones in a small stream.

Whatever the difference of form and colour, it does not appear to me possible to distinguish these two shells otherwise than as varieties of the same type. Their operculum is unknown to me.

20. Nerita Michaudi, Récluz in Rev. Cuv. 1841. p. 315. No. 38.

Var. β. *T. tenui, lineolis nigris longitudinalibus rectis creberrimis, et maculis luteis lineâ nigrâ anticè cinctis concatenatis triserialibusque pictâ.*

Var. γ. *T. anfractibus supra medium spinis brevibus angustisque armatis.*

Hab. Bauang, province of Pangasinan, isle of Luçon: on small stones on the bank of a river.

21. Nerita pulchella. *N. testâ subglobosâ, nitidâ, vix striatâ, luteo-viridescente, maculis nigris sagittatis et zonis æqualibus remotis nigris lutescentè articulatis ornatâ; spirâ nullâ; apice convexo; aperturâ semi-rotundâ, cærulescente; labio angusto, subconvexo, supernè calloso, anticè subrecto, denticulato; dente cardinali majori.*

Var. β. *Testâ sordidè purpurascente, albo punctatâ et zonis cæruleo-viridescentibus albo-maculatis cinctâ.*

Var. γ. *Testâ purpurascente, maculis albis nigro sagittatis et zonis nigris albo-articulatis ornatâ.*

Var. δ. *Testâ rubicundâ, punctulis albis, anticè obsoletè purpureo-nigrescentibus, anticè marginatis marmoratâ; labro crassiore.*

Long. 0·36 ad 0·40; lat. 0·44 ad 0·48; conv. 0·32 poll.

Hab. Sual, province of Pangasinan, isle of Luçon: in a small stream.

Operculum of a *Clithon*, yellowish white, marked with a fine circular streak in the centre: two teeth at the summit of the interior face; the upper one short, yellow; the lower one circular, yellow, striated lengthwise and across, sometimes dilated at the summit; the intermediary plate between the two teeth of a whitish colour.

December 13.—Prof. Rymer Jones in the Chair.

Mr. Gould, at the request of the Chairman, exhibited some new species of the genus *Ortyx*, which he thus characterizes:—

ORTYX NIGROGULARIS. *Ort. vertice et corpore superiore splendidè fuscis; strigâ nigrâ superciliari, a rostro usque ad occiput; et super hanc strigâ albâ; sub oculos lineâ albâ a rostro ad plumas auriculares, et per latera colli excurrente, gulamque nigram circumdante plumis pectoris et abdominis albis nigro marginatis angustè apud pectus, latè et distinctè apud abdomen, et sese squamatìm ostendentibus; femoribus crissoque arenaceo-castaneis; plumis lateralibus in medio albis.*

Crown and all the upper surface rich brown; margins of the tertiaries and wing-coverts fawn-colour; these feathers are also crossed with indistinct zigzag lines, freckles, and blotches of black and blackish brown; primaries greyish brown; tail deep bluish grey, the centre feathers and the external margins of the remainder freckled with reddish brown and buff; a black stripe, commencing at the base of the bill, passes over the eye to the occiput; above this a stripe of white; below the eye a white line from the base of the bill to the ear-coverts, down the sides of the neck, and encircling the throat, which is jet black; feathers of the chest and abdomen white, margined with a zone of black; narrow on the chest, broad and distinct on the abdomen; giving the under surface a scaly appearance; flanks, thighs and under tail-coverts sandy chestnut, the centre of each of the flank-feathers white; bill black; feet flesh-white.

Total length, 8 inches; bill, $\frac{9}{16}$; wing, 4¼; tail, 2¼; tarsi, 1¼.

Hab. Mexico; locality unknown. In the collection of the Earl of Derby.

Remark.—This species is of the same form and nearly of the same size as *O. Virginiana.*

ORTYX PECTORALIS. *Ort. vertice et nuchâ nigrescenti-fuscis; lineâ angustâ albâ frontali super oculos et per nucham ductâ; plumis auricularibus, colli lateribus, et pectore nigris; gulâ albâ; abdomine, lateribus et crisso, cervinis; plumis lateralibus inferioribus, ad apices nigro alboque guttatis dorso superiore, humeris scapulisque castaneis, tectricibus alarum, et caudæ, tertiariis, et dorso imo, cinereo-fuscis; plumis omnibus corporis superioris cervino pallidè marginatis, et punctatis.*

Crown of the head and back of the neck blackish brown; a narrow stripe of white crosses the forehead, passes over the eye, and extends down the back of the neck below the occiput; ear-coverts, sides of the neck and chest, black; throat white; abdomen, flanks and under tail-coverts fawn-colour; the tips of the feathers on the lower part of the flanks spotted with black and white; the upper part of the back, scapularies and shoulders, chestnut brown; wing-coverts, tertiaries, back and upper tail-coverts greyish-brown; all the feathers of the upper surface margined and speckled with very light fawn-colour, which on the secondaries assumes the form of distinct bars; in addition to these marks the scapularies, secondaries, back and rump, are minutely freckled with brown; the strongly contrasted markings giving all the upper surface a bespangled appearance; primaries brownish-grey; tail-feathers bluish-grey; some of them freckled on the margin with buff; bill black; feet flesh-white.

Total length, 7 inches; bill, $\frac{1}{2}$; wing, 4; tail, $2\frac{1}{8}$; tarsi, $1\frac{1}{8}$.

Hab. Mexico; locality unknown. In the collection of the Earl of Derby.

Remark.—Of the same form, but smaller in size than *O. Virginiana.*

ORTYX CASTANEA. *Ort. fronte gulâque nigris; lineâ superciliari albâ obsoletâ usque ad occiput, et super hanc lineâ nigrâ vertice, nuchâ, dorso superiore, humeris, pectore, et lateribus saturatè castaneis; uropygio, tectricibusque caudæ castaneis nigro irroratis, fasciatis, et punctatis; plumis abdominalibus albis, nigro undatìm fasciatis lateralibus, guttis albis suprà nigro cinctis, ornatis; his notis omnibus lucidis.*

Forehead and throat black; an indistinct line of white runs over the eye to the occiput, above this another indistinct line of black; crown of the head, back of the neck, upper part of the back, shoulders, chest and flanks, deep rich chestnut; the feathers on the sides of the neck with a black stripe down the centre and an oblong patch of white down the outer web; the tertiaries and some of the scapularies margined with deep fawn-colour, bounded within by an indistinct line of black; these feathers are also crossed with indistinct bars and freckles of black; rump and upper tail-coverts rich chestnut, minutely freckled, barred and dotted with black; feathers on the centre of the abdomen white, marked with strong zigzag bars of black, changing into spots of white, bounded above by black on the flanks, all these marks being very brilliant; eyelash dark olive; irides dark reddish hazel; bill black; legs yellowish white.

Total length, $8\frac{1}{2}$ inches; bill, $\frac{5}{16}$; wing, $4\frac{1}{2}$; tail, $2\frac{7}{8}$; tarsi, $1\frac{1}{4}$.
Weight $5\frac{1}{4}$ ounces and 20 grains avoirdupois.

Hab. South America; locality unknown. In my own collection.

Remark.—Rather larger in all its measurements than *O. Virginiana.* From the general appearance of this bird, Mr. Gould is led to believe that it may hereafter prove to be a variety of some other species, probably of *O. Virginiana*; at the same time its markings are so different and so decided in character that he has deemed it best to describe it provisionally, under a distinct appellation.

ORTYX (ODONTOPHORUS) STELLATA. *Ort. mas. gulâ et collo cinereis, plumis rufo marginatis alis, plumisque scapularibus castaneo, cervino, et nigro pulchrè pictis; caudæ tectricibus, rectricibusque lineis undulatis alternatìm rufo-fuscis et nigris, ornatis, punctis, et guttis parvulis interspersis; pectore, abdomine, et crisso splendidè rufo-castaneis plumis pectoris guttâ parvulâ centrali albâ angustè nigro ferè cinctâ, perpulchrè pictis.*

Fœm. staturâ minore, et notis albis pectoralibus magìs productis, et minùs conspicuis distinguendâ.

Male.—Naked skin before and behind the eye yellowish; bill black; crest rather lengthened and full; forehead and ear-coverts clouded chestnut, the former passing into reddish chestnut on the crown, and gradually brightening towards the occiput; throat and neck both before and behind grey, all the feathers margined with rufous; scapularies and wings (except the primaries) beautifully marked with rich chestnut, buff and black, the black predominating on the scapularies, which feathers are rendered very conspicuous by having a whitish buff line down the centre; the tertiaries also are marked with a bold edging of rich buff, bounded on the inner side by a well-defined band of black, which surrounds the feather, while the buff occupies the upper edge only; at the tip of all the wing-coverts is a triangular spot of buffy white; primaries blackish brown, marked on their outer edge with indistinct but regular bars of reddish brown; back and rump dull greyish buff, each feather minutely dotted and freckled with brown and black; tail-coverts and tail rufous brown and black, the markings and colour so disposed that neither predominate, being dispersed over each feather in alternate narrow zigzag lines, interspersed with minute dots and freckles; chest, abdomen and under tail-coverts rich rufous chestnut; the feathers of the chest with a small white mark in the centre, very nearly surrounded by a narrow irregular line of black, giving it a very sparkling appearance; feet and legs in the dried specimen horn-colour.

Female.—Differs in being smaller in size and in having the small white markings of the chest, being more lengthened in form and less conspicuous than in the male; in all respects the colouring of the two sexes is generally similar.

	Male.	Female.
Total length	$10\frac{1}{2}$ inches.	$9\frac{1}{2}$ inches.
Bill	$0\frac{3}{4}$ —	$0\frac{5}{8}$ —
Wing	$5\frac{3}{8}$ —	$5\frac{1}{4}$ —
Tail	$3\frac{1}{4}$ —	$2\frac{1}{2}$ —
Tarsi	2 —	$1\frac{3}{4}$ —

This species is about the size of the Common Partridge. The specimens from which the above descriptions were taken are in the British Museum, to which they were presented by Lord Stewart; they are said to be from Brazil.

Specimens of new species of the genera *Trochus* and *Turbo* were also exhibited, and were accompanied by the following descriptions by Lovell Reeve, Esq.

Genus TROCHUS.

TROCHUS ASTERISCUS. *Troch. testá obeso-conicá, viridescente, anfractuum margine squamoso-stellatá, squamis, grandibus cavis, infimá facie eximiè serratá, serris linearibus, parallelis, circulatim dispositis; umbilico tecto, basi roseo-tinctá.*

Reeve, Conch. Syst., vol. ii. pl. 217. f. 3.

Alt. $1\frac{1}{4}$; diam. $1\frac{1}{8}$ poll.

Hab. —— ?

This shell has the base of the columella stained with rose-colour, like the *Trochus rhodostoma*, Lamarck; there is no danger, however, of confounding it with that species; the under surface of the *Trochus asteriscus* is most elegantly serrated, the serræ ranging round with peculiar regularity; and the periphery of each whorl extends into large hollow spouted scales. The shell figured in 'Conch. Syst.,' at fig. 5 of the same plate, under the name of *Trochus pileolum*, appears, by a figure subsequently published in Delessert's 'Recueil de Coquilles,' to be the *Trochus fimbriatus* of Lamarck.

TROCHUS GEMMOSUS. *Troch. testâ parvâ, conoideâ, luteo et violaceo vividè variegatâ; anfractibus leviter convexis, superficie ubique granulatâ, granulis obtusis, quasi gemmosis; infimâ facie similiter ornatâ.*

Reeve, Conch. Syst., vol. ii. pl. 218. f. 9.
Alt. $\frac{3}{4}$; diam. $\frac{3}{4}$ poll.
Hab. —— ? Mus. Stainforth.

This is a most lovely shell to look upon; it is richly variegated with violet and yellow, and the surface being obtusely granulated, gives it the appearance of being studded with gems.

TROCHUS HANLEYANUS. *Troch. testâ acutè conicâ, viridi, levissimè nodulosâ; anfractibus planiusculis, peripheriâ ultimi acutâ; infimâ facie roseo-tinctâ, minutissimè serratâ, serris regularibus, seriatim dispositis, umbilico parvo.*

Reeve, Conch. Syst., vol. ii. pl. 218. f. 11.
Alt. $1\frac{1}{2}$; diam. $1\frac{1}{4}$ poll.
Hab. —— ? Mus. Cuming.

By the above title I wish to keep in remembrance the name of my industrious friend Sylvanus Hanley, Esq.

TROCHUS MODESTUS. *Troch. testâ conoideâ, roseo-aurantiâ, tuberculiferâ, subsquamosâ; anfractibus convexis, tuberculis squamæformibus, irregularibus, in medio biseriatìm cinctis; umbilico tecto; basi aurantiâ.*

Reeve, Conch. Syst., vol. ii. pl. 218. f. 14.
Alt. $1\frac{5}{8}$; diam. $1\frac{3}{4}$ poll.
Hab. —— ? Mus. Cuming.

This shell, which is of a peculiar rose-tinted orange-colour, has each whorl encircled with a double row of irregular scale-like tubercles.

TROCHUS EXIMIUS. *Troch. testâ conico-pyramidali, pallidè carneolâ, lineis transversis interruptis sparsim ornatâ; anfractibus supernè concavis, in medio depresso-planis, bifuniculatis, funiculis albonigroque tessellatis; umbilico tecto.*

Reeve, Conch. Syst., vol. ii. pl. 218. f. 12.
Alt. $\frac{7}{8}$; diam. $\frac{3}{4}$ poll.
Hab. ad Payanam. Mus. Cuming.

Dredged from sandy mud at the depth of ten fathoms.

TROCHUS MELANOSTOMA. *Troch. testâ depresso-conicâ, cinereoviolaceâ, fauce nigerrimâ, anfractibus concaviusculis, marginibus acutis, infimâ facie circulariter tæniatâ; umbilico tecto.*

Reeve, Conch. Syst., vol. ii. pl. 218. f. 16.
Alt. $\frac{5}{8}$; diam. $\frac{3}{4}$ poll.
Hab. ad oras Novæ Hollandiæ.

The mouth of this shell is lined with a peculiarly black shining enamel.

Genus TURBO.

TURBO PULCHER. *Turb. testá ovatá, ventricosá, multicostatá, luteo-viridescente costis lineolis nigricantibus hic et ubique pictá; anfractibus tumidis, ultimo valdè maximá, costis interstitiisque profusè et tenuissimè serratis.*
Reeve, Conch. Syst., vol. ii. pl. 219. f. 3.
Alt. $2\frac{1}{4}$; diam. $1\frac{7}{8}$ poll.
Hab. ——? Mus. Cuming.

The leading feature of this beautiful shell is, that the entire surface, both ribs and interstices, are very thickly and finely serrated.

TURBO TICAONICUS. *Turb. testá ovato-turbinatá, multicostatá, luteo-viridescente, strigis nigerrimis transversìm ornatá; anfractibus rotundatis, ultimo sublaxius voluto; costis irregularibus, latis et angustis, interstitiis tenuissimè serratis; umbilico parvo.*
Reeve, Conch. Syst., vol. ii. pl. 219. f. 6.
Alt. $2\frac{1}{8}$; diam. 2 poll.
Hab. ad insulam Ticao, Philippinarum. Mus. Cuming.

This shell was found by Mr. Cuming at the above locality in mud, at the depth of ten fathoms.

TURBO SQUAMIGER. *Turb. testá ovato-turbinatá, multisquamosá, luteo et viridi variegatá, anfractibus subtumidis squamis grandibus, cavis, seriatim dispositis, ubique cinctis.*
Reeve, Conch. Syst., vol. ii. pl. 220. f. 7.
Alt. $1\frac{3}{8}$; diam. $1\frac{1}{4}$ poll.
Hab. ——? Mus. Cuming.

The *Turbo squamiger* may be immediately recognised, as being entirely covered with large vaulted scales, arranged in regular parallel transverse rows.

TURBO VARIABILIS. *Turb. testá ovatá, lævi, luteo- aut rubido-brunnescente variabilè variegatá; umbilico tecto.*

Var. α. Testá luteo-rubellá, fusco alboque variè nebulosá et tæniatá.
Reeve, Conch. Syst., vol. ii. pl. 219. f. 2.
Alt. 2; diam. $2\frac{1}{8}$ poll.
Hab. ad insulam Capul, Philippinarum.

Var. β. Testá rosaceo-rubrá, lineis tenuibus flexuosis albis, diagonaliter pictá.
Reeve, Conch. Syst., vol. ii. pl. 219. f. 1.
Alt. $1\frac{7}{8}$; diam. $1\frac{7}{8}$ poll.
Hab. ad insulam Capul, Philippinarum.

The general painting of these shells, which were found by Mr. Cuming at the above locality in deep water, varies considerably, some being richly clouded with brown and a warm yellow, whilst others are crossed with a number of fine white diagonal lines upon a deep crimson ground. They approach nearest to the *Turbo petholatus*, differing, however, in a very remarkable degree in the character of the painting above noted. The riband-like bands, which form a never-failing peculiarity in that species, are wanting, and so also is the green or yellow tinge of colour which runs round the columellar side of the mouth.

Descriptions, by Dr. L. Pfeiffer, of some new species of *Helicidæ*, collected by Mr. Bridges in the northern parts of Chile, were then read:—

Bulimus Bridgesii. *Bul. T. subperforatá, oblongo-ovatá, apice obtusá, tenui, pallidè luteo-fulvescente, confertissimè et leviter decussatá; suturá mediocri, marginatá; anfractibus* 4 *convexiusculis, ultimo spiram superante; aperturá ovali, intùs nitidè fulvidá; peristomate simplice, latè reflexo, intùs albo, marginibus callo junctis, columellari perforationem ferè occultante.*

Long. $11\frac{1}{2}$; diam. $5\frac{1}{2}$ lin.

From the town of Frierina (Huasco, Chile). Found under stones.

Bulimus pachychilus. *Bul. T. subperforatá, ovatá, apice obtusá, crassá, albá, longitudinaliter striatá, lineis confertissimis transversis sub lente decussatá; anfractibus* $4\frac{1}{2}$ *convexiusculis, ultimo* $\frac{3}{5}$ *longitudinis subæquante; aperturá integrá, ovali, intùs albá; peristomate latè incrassato, pallidè fulvescente, nitido, marginibus callo crasso junctis.*

Long. $19\frac{1}{2}$; diam. 11 lin.

From La Questa de Arenas (Huasco, Chile). Found buried in sand.

Bulimus rhodacme. *Bul. T. perforatá, ovato-oblongá, longitudinaliter striatá, striis transversis obsoletis minutissimè decussato-subgranulatá, albá maculis et flammis pellucidis rubellis ornatá, apice obtuso roseo; anfractibus* 6 *convexis, ultimo* $\frac{1}{3}$ *longitudinis subæquante; aperturá oblongo-ovali; peristomate simplice, recto margine columellari reflexo.*

Long. $7\frac{1}{2}$; diam. $2\frac{3}{4}$ lin.

From the town of Frierina (Huasco, Chile). Found under small *Cacti.*

Bulimus terebralis. *Bul. T. rimato-subperforatá, subulatá, longitudinaliter rugulosá, albidá, supernè fusco-cærulescente; anfractibus* $10\frac{1}{2}$ *planis, ultimo* $\frac{1}{4}$ *longitudinis vix superante, basi subcarinato; columellá obsoletè plicatá; aperturá ovali intùs albá; peristomate simplice, margine dextro dilatato, columellari reflexiusculo, supernè carinæ affixo.*

Long. $10\frac{1}{2}$; diam. $2\frac{1}{4}$ lin.

From Coquimbo (Chile). Found on rocks and plants near the sea.

Succinea elegans. *Suc. T. ovato-oblongá, tenui pellucidá, læviusculá, rubello-corneá, strigis longitudinalibus, opacis, albis, rufo-marginatis ornatá; anfractibus* $5\frac{1}{2}$ *planiusculis, ultimo spiram acutam vix superante; aperturá ovali-oblongá, intùs nitidá, concolore; peristomate simplice, margine columellari vix calloso.*

Long. 18; diam. $8\frac{1}{2}$ lin.

From the Questa de Arenas (Huasco, Chile). Found on a species of *Juncus.*

Succinea reflexa. *Suc. T. ovato-oblongâ, tenui pellucidâ, nitidâ, minutissimè granulosâ, corneo-sulphureâ, strigis irregularibus interdum ramosis, rufis ornatâ; anfractibus* 5 *planiusculis, ultimo spiram vix superante; aperturâ ovali-oblongâ, intùs albidâ, obsoletè strigatâ; peristomate simplice, acuto, margine columellari tenuissimo, albo reflexo.*

Long. 19½; diam. 8½ lin.

From Pichidanque, near Coquimbo. Found on the leaves of *Pourretia coarctata.*

Succinea variegata. *Suc. T. ovato-acutâ, solidiusculâ, longitudinaliter rugosâ, regulariter granulatâ, luteâ, maculis longitudinalibus et punctis nigricanti-rufis seriatìm pictâ; apice acuto; anfractibus* 5½ *planiusculis, ultimo* 4/7 *longitudinis subæquante; aperturâ oblongo-ovali, intùs nitidè albâ, strigis pellucentibus; peristomate simplice, acuto, margine columellari subcalloso.*

Long. 24; diam. 11½ lin.

Valleys in the north of Coquimbo. Found in crevices of rocks.

"These three species, described under the name of *Succineæ,* belong to that group of *Heliceæ* of which the well-known *Hel. gallinasultana,* Chemn., is the type. The shell having no columella is perfectly analogous to that of the genuine *Succineæ,* and we are informed by Mr. D'Orbigny's observations, that the animal of *H. gallinasultana* is also very similar to *Succinea* in its form and habits. Accordingly this species must be related to *Succinea,* and I believe that the species above described should not be separated from it, although we do possess but imperfect notions of their habits. Of one species it is noticed that it was found on a species of *Juncus,* probably in the vicinity of water.

"By the same reason (the analogy of shells) I have enumerated the *Bulimus Broderipii* and *Coquimbensis* among the *Succineæ* (in my 'Symbolæ ad Historiam Heliceorum')."

GEOLOGICAL SOCIETY.

[The following interesting extracts are taken from the Anniversary Address delivered by the President, R. I. Murchison, Esq., on the 17th of February 1843.—Ed.]

Palæontology.

Ichthyology.—Geologists who have commenced their career since the glacial theory has been in vogue and have read the numerous memoirs and heard the exciting discussions to which it has given rise, are chiefly acquainted with Professor Agassiz as one of its most ingenious expounders. I have now the pleasure to acquaint you that M. Agassiz is once more completely absorbed in his great work on fossil fishes—that work which you so justly honoured, in the year 1835 to 1836, with your Wollaston Donation and Medal. Of his progress in this arduous undertaking, he has recently given substantial proofs, in the description of many ichthyolites of the Old Red Sandstone of Scotland; and, in addition to this, he will shortly publish a series of fossil fishes, exclusively illustrative of the tertiary basins of London and Paris, from which an enormous number of species has been collected.

In reference to the geological researches of my friends and myself in Russia, I must here state, that as it is our one great object to place in correct parallel the Palæozoic types of Russia with those of the other parts of Europe, we could not hesitate in referring all our Russian ichthyolites to Professor Agassiz; for whilst it must be acknowledged that Russia contains naturalists of great merit, and that among them M. Pander and Professor Asmus had commenced inquiries into the nature of these fossils, it was obvious that, skilful as they undoubtedly are, they could not, for want of comparisons, afford us the knowledge of which we stood in need. Professor Agassiz, who has at his disposal fossil fishes from all those parts of Europe, the geological structure of which has been well explained, was alone capable of answering the following query; To what extent do the ichthyolites of Russia, which lie in beds superior to the Silurian rocks, and which are surmounted by the Carboniferous limestone, resemble those with which we are so well acquainted in Scotland and England? His reply has indeed been most satisfactory.

So complete, says he, is the identity of about ten species of the Scottish and Russian strata, that the specimens from the two countries may be confounded. Among them the *Holoptychius nobilissimus*, three species of the *Dendrodus* (Owen), *Diplopterus macrocephalus*, are forms which might strike any good observer, as they have been previously published by M. Agassiz; but from the more perfect specimens of other species which we brought from Russia, he has been enabled to recognize the presence in Scotland of the species of a common Russian genus, the *Glyptosteus*, and also of that gigantic genus the *Chelonichthys*, to whose remains I have before directed your attention as having been recognized to be of ichthyic character by Professor Asmus. To this enormous fossil fish, some of whose thoracic bones are as large as the breast-plate of a well-grown warrior, and a single bone of which measured nearly three feet in length, Professor Agassiz has given the name of *Chelonichthys Asmusii*; and he now informs me that he possesses fragments of the same creature from the north of Scotland. The knowledge of this fact will doubtless lead to redoubled activity on the part of Mr. Hugh Miller and those Scottish naturalists who inhabit the shores of the Cromarty and Murray friths, to produce a rival of the Russian giant; a hope which I cannot express without deeply lamenting the death of a most successful explorer of these remains, whose loss geologists have to deplore, in common with every one who could appreciate her range of thought, her accomplishments, and her goodness*.

The results, however, of the examination of the Russian ichthyolites go still further; for, on submitting to the microscope of Professor Owen some teeth similar in outline to those of his genus *Dendrodus*, he discovered in them precisely the same dendridic disposition of the vascular canals as that which led him to establish the genus from Scottish fossils. Nor does the value of this application of the microscope stop here, for Professor Agassiz has informed me, that availing himself of the weapons which Professor Owen had so skilfully wielded, he has commenced a series of researches, not only into the teeth but also into the structure of all the hard enamelled bones of the Russian fossil fishes, by which he will be able to show the same distinction in the other bones of the genera of this class, which Professor Owen has successfully established in relation to the hard parts of the higher order of animals. In such hands, therefore, the microscope has become an instrument of great utility in identifying fragments apparently obscure; and, as it has been applied to the shells of Mollusca, and even to the lowest links in animal life, as well as to fossil plants, the geologist has thus acquired a new and powerful auxiliary. I am here, however, treading on ground now fortunately occupied by the Microscopical Society, the active promoters of which are well entitled to our gratitude.

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* Lady Gordon Cumming.

Mylodon.—One of the most brilliant, and, I venture to say, not the least durable of the researches in palæontology, remains to be mentioned in the description of the *Mylodon robustus*, a new species of gigantic edentate animal, accompanied by observations on the affinities and habits of all Megatherioid animals. After a sketch of the labours of Cuvier, who first described the huge Megatherium and pointed out its analogy to the family of Sloths and Armadillos, of the succeeding writings of Jefferson and Harlan upon the genus Megalonyx, of Dr. Lund on the Cœlodon and Sphenodon of Brazil, and of his own researches which established the Mylodon and Scelidotherium, Professor Owen proceeds to describe the megatherioid animal which he has named *Mylodon robustus*.

Of the purely anatomical descriptions, it is not my province to speak, and referring you to the work in which, through the enlightened munificence of the College of Surgeons, all the necessary illustrations have appeared, I pass to the generalizations, and learn that the Mylodon, in common with the Megatherium and Megalonyx, are genera of the family of *Gravigrada*, as distinguished from the *Tardigrada* in the order *Bruta*.

Professor Owen then proceeds to a comparison of the anatomy of the Mylodon with that of all analogous creatures, and after an able analysis, he satisfies himself, and also, I am persuaded, every one who has followed his close reasoning, that he has at length ascertained the true habits and food of this family of mammifers. From their dentition, it is inferred that the Megatherium and Mylodon must have been phyllophagous, or leaf-eating animals; whilst, from their short necks, the very opposite extreme to the camelopard, they never could have reached the tops of even the lowest trees. Cuvier, on the contrary, suggested that they were fossorial, or digging animals; and we all recollect the animated manner in which Dr. Buckland attracted us, whilst he described the Megatherium as a huge beast, which, resting upon three legs, employed one of its long fore-hands in grubbing up whole fields of esculent roots; a habit which procured for it the significant popular name of "Old Scratch."

Dr. Lund, a Danish naturalist, had considered the Megatherium to be a scansorial or climbing animal; in short, a gigantic Sloth. After a multitude of comparisons, Professor Owen rejects the explanation of all his predecessors. He shows that the monstrous dimensions of the pelvis and sacrum, and the colossal and heavy hinder legs, could never have been designed, either to support an animal which simply scratched the earth for food, or one which fed by climbing into lofty trees, like the diminutive Sloth; and he further cites the structure of every analogous creature, either of burrowing or climbing habits, to prove, that in all such the hinder legs are comparatively light. What then was the method by which these extraordinary monsters obtained their great supplies of food? The osteology of the fore-arm has, it appears, afforded answers which are valuable, chiefly for their negation of erroneous conjectures, such as that the animal was an ant-eater, rather than for the habits which it directly elicits. It is, therefore, to the organization of the hinder limbs that Professor Owen mainly appeals to ascertain the functions of the fore-feet and the general habits of the Mylodon.

Arguing that the enormous pelvis must have been the centre whence muscular masses of unwonted force diverged to act upon the trunk, tail and hind-legs, the latter, it is supposed, formed with the tail a tripod on which the animal sat. Professor Owen supposes that the animal first cleared away the earth from the roots with its digging instruments, and that then seated on its hinder extremities, which with the tail are conjectured to have formed a tripod, and aided by the extraordinary long heel as with a lever, it grasped the trunk of the tree with its fore-legs. Heaving to and fro the stateliest trees of primæval forests, and wrenching them from their hold, he at length prostrated them by his side, and then regaled himself for several days on their choicest leaves and branches, which till then had been far beyond reach. After showing that from the natural inversion of the hind-feet the Mylodon approached to the scansorial animals, and thence inferring that it might have had climbing powers necessarily much limited by the other parts of its frame, Professor Owen states, that the inversion of the soles of the feet is least conspicuous in the Megatherium, whose bulk and strength would be adequate to the prostration of trees too large for the efforts of the Mylodon, Megalonyx and Scelidotherium. The Megatherium, in short, was the mighty tree-drawer, and had therefore no need of the adventitious aid of any climbing apparatus. Allow me to add, that, amongst other reasonings, those which lead to conclusions that one class of megatherioid animals was furnished with a hairy coating (like the Mylodon), whilst another, like the great Megatherium, was devoid of it, as evidenced by slight modifications of the bony structure of the hind-feet, appear to me to be not the least original and interesting.

Wholly incapable, as I am, to do justice to this masterly inquiry by the necessarily brief allusion which is imposed upon me by the nature of this discourse, I shall best execute my task in quoting the words with which Professor Owen sums up his reasoning.

"On the Newtonian rule, therefore, this theory has the best claim to acceptance; it is, moreover, strictly in accordance with, as it has been suggested by, the ascertained anatomy of the very remarkable extinct animals, whose business in a former world it professes to explain. And the results of the foregoing examination, comparisons and reasonings on the fossils proposed to be described, may be summed up as follows. All the characteristics which exist in the skeleton of the Mylodon and Megatherium, conduce and concur to the production of the forces requisite for uprooting and prostrating trees; of which characteristics, if *any one were wanting, the effect could not be produced*: this, therefore, and no other mode of obtaining food, is the condition of the sum of such characteristics, and of the concourse of so great forces in one and the same animal."

This, Gentlemen, is the true Cuvierian style, in which, as in numberless parts of his works, Professor Owen has continued to breathe out the very spirit of the founder of palæontological science.

It is by such labours that geology is steadily gaining a higher place among the sciences. Comparative anatomy has truly been our steadiest auxiliary, and well may we do honour to those who impart to us such truthful records; for, whilst the histories of the earlier beings of our own race are shrouded in obscurity, whilst the first chronicles of ancient Rome and Greece are now admitted to be exaggerated, and often even fabulous, we turn back the leaves of far more antique lore; and, not trusting to perishing inscriptions, mutilated by successive conquerors, and assuming a hundred meanings under the eyes of doubting antiquaries, we appeal only to the proofs in nature's book, and find that their reading is pregnant with evidences which must be true, because they are founded on unerring general laws.

In concluding this Address, I can assure you, Gentlemen, that, although not prepared without some labour, its composition has afforded me both gratification and instruction. Had I not felt a strong obligation to fulfil my duty, I should necessarily have been absorbed in the preparation of the work upon Russia to which I have alluded, and could not therefore have been imbued with an adequate sense of the vast progress which our science has recently made in all quarters of the globe.

BOTANICAL SOCIETY OF LONDON.

Sept. 1, 1843.—J. E. Gray, Esq., F.R.S. &c., President, in the Chair.

Dr. Wood of Cork presented a specimen of *Neottia gemmipara*, found in Ireland.

Dr. Thomas Taylor presented the following species of *Junger-*

manniæ new to the British Flora: *Jungermannia reclusa* (MSS. Taylor), *J. fragilifolia* (MSS. Taylor), *J. germana* (MSS. Taylor), and *J. riparia* (MSS. Taylor).

Read "Observations on some varieties of *Hypna* and on a new species of Lichen," by Dr. Thomas Taylor.

Local collections of Cryptogamic plants are instructive in two ways; by contributing to our knowledge of the geographical distribution of the species, and by pointing out the directions which the characters of the varieties take when acted on by diversity of circumstances of external agencies. The Cryptogamic collection of Dr. G. Watson from the vicinity of Philadelphia, presented to the Botanical Society of London, elucidates in some particulars the foregoing remark; not however to a great extent, as the collector seems to have satisfied himself with gathering the largest and most prominent species, and to have omitted or overlooked the minuter and more inconspicuous kinds: yet what has been collected is far from being destitute of interest and value.

Thus he has remitted to London a great profusion of *Neckera cladorrhizans* (Hedw.). Now this moss was first described from Swiss specimens by Hedwig; it was afterwards sent to this country from Nepal by Dr. Wallich, and from New York by Dr. Torrey; finally we have it in the present collection from Philadelphia.

In Great Britain and Ireland, so fertile in mosses, it is totally unknown. We may therefore conclude that this species is altogether continental, although for the present we are unacquainted with those laws that deny to it an insular locality.

We have *Hypnum salebrosum* (Hoffm.), by its smaller size, imposing upon us the form of a new species; but although the branches are more compressed and shorter, the leaves somewhat narrower, the pedicels more slender, and the capsules soon turning black, yet in all essential characters it entirely agrees with our British species.

Hypnum plumosum (L.) with us assumes diversified forms, among which a remarkable one, collected by the late Miss Hutchins at Glengeriff, has all the leaves decidedly secund.

The variety gathered by Dr. Watson has the upper leaves alone heteromallous; but then its more erect and longer capsules, and the less concave but substriated leaves, claim the adjustment of the balance between species and variety by a practised hand.

Dr. Taylor considered it less hazardous for the present to leave it in the rank of the latter. But the impatient may say, when then are we to expect the means of exactly deciding? The answer is, perhaps, not until some muscologist enjoys the privilege of seeing both growing in their native localities; for there is much value in the character taken from the habit of a plant. Many modern elevations of varieties to the rank of species have been first suggested by the silent appeal of the look of the growing individuals.

In Dr. Watson's state of *Hypnum rutabulum* (L.), a mark hitherto considered essential to the species seems to be vanishing. The pedicels exhibit scarcely any appearance of roughness immediately below the capsules; in all other particulars the Philadelphian and

European mosses coincide. But Mr. Wilson, whose observations on this tribe are always as original as acute, has long since taught Dr. Taylor that the scabrous state of the pedicel in this species is liable to great variation; insomuch that he seems disposed to doubt if *Hypnum vagans* of Hooker in Drummond's 'Musci Americani,' separated principally on account of the smoothness of its fruit-stalks, be really distinct from *Hypnum rutabulum* (L.).

Among the very few lichens sent by Dr. Watson is a species of *Cenomyce* which may be considered new, and called *Cenomyce foliacea.* Its specific character may be thus given:—

"Podetia two inches high, loosely cæspitose, dichotomously branched, the ultimate branches subulate and tipped with brown; the buds in flattened, granular, pale green elevations of the cuticle, soon expanding into flat lobes which are subpinnately branched and crenate, pale glaucous above, snow-white beneath, unaltered by moisture. There were no apothecia present."

The generic name is that of Acharius, which perhaps should not be abandoned but upon the clearest necessity. The modern subdivision of this genus into *Cladonia* and *Scyphophorus* appears attended with no advantage, while the species of these two tribes are, by the confession of the adopters themselves, joined by links that appear inseparable from either set. Indeed on this question the present plant is quite in point, having all the habit of *Cenomyce sparassa* (Ach.), (*Scyphophorus* of Fée and of DeCandolle), with the attenuated and subulate branches of *Cladonia* (of the same authors).

The buds of lichens have not received the consideration from botanists which their importance merits.

Hitherto the characters have been drawn from the *thallus* or from the *apothecia* alone; but the buds by which, for the most part, these plants are multiplied, and which, if watched during development, present most remarkable features, should be hailed as a new and welcome element for specific distinctions.

In *Cenomyce sparassa* (Ach.) the buds originate in coarse white granules, thickly set and rising at once above the surface of the *podetia*; in our plant they are flat, scarcely eminent above the cuticle of the *podetia*, pale glaucous green from the beginning, and not so densely crowded, nor do they expand into lobes so linear. Another character may be taken from the branches of the *podetia*, which in the former are nearly parallel and of equal thickness except at the very summit, while in *Cenomyce foliacea* they are more gradually acuminated and divaricated above.

MISCELLANEOUS.

GRIFFITHSIA SIMPLICIFILUM, AGARDH.

This species of Alga, which has not been noticed as occurring on any part of the coast of Great Britain, was found plentifully by Mr. R. Ball and myself at Freshwater bay, in the Isle of Wight, on the 7th of August 1841. The species has a place in the British cata-